

listened to in twenty-nine States. There is a clash of interests between commercial and public institutional broadcasting, the demand for radio channels for commercial use having been so great that the right of the State to use this medium even for police purposes has been challenged. Practically all the commercial broadcasting stations devote much (in the aggregate about a tenth) of their time to 'educational' programmes. There are indications, however, that the advertising programmes are gradually displacing the educational, except at educational stations.

Calendar of Geographical Exploration

April 19, 1827.—The Niger and Timbuktu

M. Caillié, a French government official of Sierra Leone, left Kakundy, on the Nunez river, midway between Sierra Leone and the Gambia. With a small caravan of Mandingoes he crossed the region through which ran the upper tributaries of the Senegal and the Niger. He was the first European to enter the town of Jenné, on the Niger, though Park had seen it on his last journey. From Jenné he sailed down the Niger to Kabara, the port of Timbuktu, and reached that city on horseback. Caillié found the city to be a collection of mud huts, among which rose several rudely built mosques. To north-east and south of it spread vast deserts, and after a fortnight's stay, Caillié and his caravan began a march across the Sahara to Morocco. In one tract the travellers marched ten days without a drop of water; men and animals suffered severely, but ultimately Caillié won his way through Tafilet and the Atlas to Fez and Tangier. Timbuktu was first reached by a European in 1826, when Major Laing paid for his pioneer entry into the mysterious city with his life.

April 20, 1534.—Cartier and the St. Lawrence

Jaques Cartier sailed from St. Malo, in charge of an expedition to look for a north-west passage to the Orient. He reached Newfoundland on May 10, but was delayed by ice. Then began his series of explorations of the coasts of Newfoundland, Labrador, and the islands and straits off the coasts of Canada. In 1536, on a second voyage, he sailed up the St. Lawrence estuary and reached the site of the present Montreal, of the scenery around which and of the Lachine Rapids he left a vivid description. Cartier's work in charting these coasts and discovering the region of the St. Lawrence, which was later settled by the French, was of outstanding importance.

April 22, 1500.—The Coast of Brazil

Pedro Alvares Cabral sighted the coast of Brazil. He had been sent out by the Portuguese Government to follow up da Gama's discovery of an 'all sea' route to India, and da Gama had himself drawn up the sailing directions. In order to avoid the calms off the Gulf of Guinea, Cabral bore so far to the west that the coast of South America was discovered. Early in the same year the Spanish navigator, Vicente Yanez Pinson, had touched the coast of Brazil, but Cabral did not know of this.

April 22, 1898.—Cambridge Expedition to the Torres Straits

Dr. A. C. Haddon arrived at Thursday Island in charge of an expedition closely associated with the University of Cambridge. The expedition was of a unique character, for it was the first occasion on which investigations into the psychology of primitive peoples were carried out on a thoroughly scientific

basis. Dr. Haddon gathered round him for this pioneer effort a brilliant group whose names are now world-famous in psychology, including the late Dr. W. H. R. Rivers, Dr. C. S. Myers, Prof. W. McDougall, and Prof. C. G. Seligman. The scientific data gathered have been published in several volumes, which have become standard sources of inspiration for all subsequent field workers in primitive psychology and in the social and physical anthropology of native peoples. The members of the expedition visited many islands in the Torres Straits, and also studied tribes in the Central and Mekeo districts of British New Guinea and in the Baram district of Sarawak. In 1888-89, Dr. Haddon paid a visit to the Torres Straits, and became deeply interested in the life of the natives; the confidence which he then inspired in them paved the way for the friendly relations essential for the success of scientific work among these 'head-hunting' tribes.

April 22, 1908.—Stefansson in the Arctic

Vilhjarnur Stefansson set out on an expedition, during which he discovered several Eskimo tribes and obtained much information about their way of life. Stefansson began his career of exploration by archaeological research in Iceland in 1904. In 1905 he turned to arctic research, and by 1928 had spent ten winters and thirteen summers in scientific work north of the Polar Circle, always living like the Eskimo and therefore travelling light. The Canadian arctic expedition under Stefansson in 1913-18 is estimated "to have withdrawn nearly 100,000 square miles from the areas of unknown seas and lands". On this expedition the ship *Karluuk*, carrying part of the group, was crushed in the ice and sank. Its crew reached Wrangel Island, where a relief ship rescued the survivors—Capt. Bartlett, commander of the *Karluuk*, having bravely walked to Siberia to bring help.

April 23, 1556.—The English on the Arctic Coast of Russia

The *Searchthrift*, commanded by Stephen Burrough, left Ratcliffe on a voyage to search for the north-east passage. Sebastian Cabot, then a very old man, came on board to wish them God-speed. Burrough met many Russian and Finnish *lodjas* (sailing boats with boards bound fast together by willows, not riveted): These fishing boats gave him much help, and were able to sail more easily and rapidly than the *Searchthrift*. Burrough, after reaching Vaygatz, returned to Kholmogory and wintered there, intending to proceed to the mouth of the Ob River next season. Instead of doing this, he turned westwards to search for Willoughby and the two vessels lost with him in the 1553 expedition. His voyage set up a new record of arctic penetration and made it clear how great were the difficulties of voyages in these very high latitudes. He brought back interesting accounts of the life and customs of the Samoyedes.

Societies and Academies

LONDON

Geological Society, Feb. 24.—G. C. A. Jackson: The geology of the N'Changa district, Northern Rhodesia. The area, which forms part of the original Rhodesian Congo Border Concession, covers approximately 800 square miles, and lies immediately to the south of the Belgian Congo border. It is a wooded peneplain, underlain by four principal series of ancient metamorphosed and unfossiliferous sediments: namely, basement schists, Muva series,

Bwana M'Kubwa series, and Kundelungu series. The complex ranges from the Archæan to possibly the Lower Palæozoic in age. Petrological descriptions were given of all the principal rock types.—G. V. Douglas: General geology of a portion of Northern Rhodesia. The climatic cycle since Tertiary times, which was first desert, changed to rain-forest conditions, and is now reverting to aridity. The evidence adduced was the deep oxidation in the mines and the presence of huge dead anthills. In the eastern part of the area, pegmatite dykes with coarse and fine crystallisation occur. The coarse texture is found on the *hanging wall*, where the dykes are inclined. Where the dykes are vertical, the coarse crystallisation is found in the centre. These dykes furnish ancient plumb lines; if the dykes are now found with the coarse crystallisation on the hanging wall, it can be inferred that the country has not been flexed since the time when these dykes were consolidated. In Northern Rhodesia this phenomenon is a means of distinguishing between the older and younger granites. The trend lines of the area run from north-east and south-west in the eastern part to north-west and south-east in the section from N'Dola to some point to the west of N'Changa; in the western part the general trend is north-east and south-west, swinging into Angola.

PARIS

Academy of Sciences, March 7.—Marcel Brillouin: The critical latitudes. A contribution to the dynamical theory of tides.—Charles Nicolle and Jean Laigret: The presence of a bacterium analogous with *Rickettsia* in the vaginal tunic of guinea-pigs and rats, inoculated by way of the peritoneum with non-virulent products. These bacteria appear to exist in the organism of the rat and guinea-pig, either normally or, more probably, habituated.—C. Camichel, L. Escande, and G. Sabathé: The similitude of barrages with lateral contractions.—Jean Baptiste Senderens: The comparative value of various catalysts in the formation of esters. Comparison of the catalytic effects of sulphuric acid, sodium bisulphate, potassium bisulphate, aluminium sulphate, and phosphoric acid in the formation of alkyl acetates.—Henri Lagatu and Louis Maume: The application of the leaf diagnosis.—Henri Villat was elected a member of the Section of Mechanics in succession to the late G. Koenigs.—Gaston Julia: A canonical conformal representation of multiply connex areas.—A. Buhl: An invariance of double integrals attached to any ordinary differential equation of the first order.—Mandelbrojt: Theorems on the convergence of Taylor's series with gaps.—T. Vijayaraghavan: The growth of functions defined by differential equations.—S. Sanielevici: Singular integral equations.—Arnaud Denjoy: The characteristics of the surface of the anchor ring.—Julius Wolff: The iteration of holomorph functions in a demi-plane.—N. Abramesco: The circle of univalence of a holomorph function $f(x)$ and the smallest distance between two zeros of an equation $f(x)=A$.—Al. Proca: The magnitudes characteristic of the Dirac electron.—J. Haag: The experimental determination of the damping couple of an oscillator.—R. Serville: The passage from the viscous to the hydraulic régime for the movement of a solid in water.—Robert Gibrat: The mathematical adjustment of the delivery curves of a water-course.—F. Bourquard: Oblique plane ballistic waves and conical waves. Application to the study of air resistance.—Dubourdieu: The electromagnetic field produced by a wire carrying a sinusoidal alternating current above a conducting layer.—A. Portevin and P. Bastien: Casting alloys. Relation with the interval of solidification.—A. Turpain and H. Sabatier:

Contribution to the experimental study of electrical induction.—J. Rabinovitch: The rotatory dispersions of benzene solutions of α -dextrorotatory pinene and β -lævorotatory pinene.—A. Kastler: The Raman effect and the dipolar moment.—R. de Malleman, L. Gabiano, and F. Suhner: The magnetic rotatory power of neon. The Verdet constant for neon is one-sixth that of hydrogen and one-eighth that of argon. In the case of the monatomic gases, there is a simple connexion between the magnetic rotation and the corresponding refraction. This is not the case with the polyatomic gases.—Constantin Salceanu: The variation of the temperature constant of magnetic double refraction and of the Havelock constant for some fused organic substances.—André Marcelin and Lew Kowarski: The measurement of the thickness of thin crystalline plates by variation of incidence.—R. Forrer: The thermal law of homopolar linkages. Law of the Curie points and the melting point law.—P. Jacquet: An electrochemical method permitting the evolution of solutions of gelatine to be followed as a function of the time.—Pierre Jolibois and Georges Foutet: The photographic registration or reactions between electrolytes. The method is applicable to reactions which modify the electrical conductivity of the liquid medium in which the reactions take place.—Sze Shih-Yuan: The magnetic spectrum of the β -rays emitted by thorium-B.—Mme. Irène Curie and F. Joliot: The projections of atoms by the very penetrating rays excited in light nuclei.—Pierre Auger: The projection of light nuclei by ultra-penetrating radiations of excited radioactivity. Trajectories photographed by the Wilson method.—Charles Dufraisse and Daïb Nakaé: The catalysis of autoxidation: the antioxygen properties of cobalt. Observations concerning current theoretical discussions. Results of a detailed study of the action of metallic cobalt, its oxides, and salts on the oxidation of furfural. There appears to be no element which acts exclusively as an accelerator of oxidation.—T. Nanty and M. Valet: The specific inductive capacity of colloidal solutions. Aqueous solutions of various dyestuffs were examined. While some (Congo red, diamine blue, diamine black) show a marked increase in the specific inductive capacity, others gave the same figure as pure water.—G. Gire: The reduction of magnesia by silicon. A mixture of silicon and magnesia in the proportion Si:2MgO, heated in a vacuum for three hours between 1280° C. and 1320° C., gave a sublimate of metallic magnesium on the cold part of the tube. About sixty per cent of the magnesia was reduced to metal.—L. Bert and E. Ander: A new type of true acetylene compound, phenoxypropine. The reaction between the compound $C_6H_5 \cdot O \cdot CH_2 \cdot CH=CHCl$ and metallic sodium in boiling toluene gives rise to phenoxypropine, $C_6H_5 \cdot O \cdot CH_2C:CH$. This is shown to be a true acetylene derivative and the first term of a new series.—René Wurmser and Mlle. Nélícia Mayer: The reversibility of the oxidoreducing system of solutions of glucides.—Marius Badoche: Hydrocarbons isomeric with rubrene obtained by the hydrogenation of 9:11-diphenyl-9:12:10:11-diphenylene-9:11-dihydronaphthacene.—M. Grunfeld: The chemical reactivity of certain classes of amines. Measurements of the reaction velocities between ethyl malonate and six amines.—Georges Denigès: Formaldoxim, a very sensitive reagent for metals of the iron group, especially manganese. Various applications.—Jean Lacoste: The Senhadjas massif (Southern Rif).—L. Cagniard: The propagation of a shock at the interior of a homogeneous, isotropic, elastic, semi-indefinite solid, limited by a plane surface.—Henry Hubert: The air currents superposed in the dry

season above the Cape Vert peninsula.—Henri Gauthier: The cells with rods in fishes.—Raymond-hamet: The effects of adrenalin on the vessels of the paw and of the kidney.—A. Girard, G. Sandulesco, A. Fridenson, and Ir. J. J. Rutgers: A new crystalline sexual hormone extracted from the urine of pregnant mares.—Émile André and Raoul Lecoq: The reserves of vitamin A and D in some cartilaginous fishes.—G. Tanret: The glucosides of the leaves of the oleander. Nerioloside extracted from the *Nerium oleander* is distinct from the glucosides of *Strophanthus*.—E. Marchoux and V. Chorine: The culture of the invisible forms of the spirochete of fowls.—P. Durand: The dog as a reservoir of the virus of fièvre bouton-neuse.

ROME

Royal National Academy of the Lincei, Nov. 15.—Gr. C. Moisil: Generalisation of conjugate functions.—M. Kourensky: Integration of equations to partial derivatives of the second order with one unknown and two independent variables.—M. Ghermanesco: *n*-Metaharmonic functions.—S. Finikoff: The transformation *T* of congruences of straight lines.—P. Barreca: A method for reducing to the equator and to the equinox the separate durations of evening and morning colorations of clouds.—G. Devoto: Investigations on the dielectric constants of liquids. (6) Aqueous solutions of sulphamide. The experimental data obtained indicate for sulphamide a polar formula,

probably, $\text{NH}:\text{SO}\begin{matrix} \text{NH}_3^+ \\ \diagdown \\ \text{O}^- \end{matrix}$, which is analogous to that

proposed for carbamide in aqueous solution, namely,

$\text{NH}:\text{C}\begin{matrix} \text{NH}_3^+ \\ \diagdown \\ \text{O}^- \end{matrix}$.—A. Ferrari and C. Colla: Chemical

and crystallographic investigations on complex nitrites (1). The crystallographic analogy of potassium cobaltinitrite to the potassium-lead-nickel, potassium-lead-cobalt, and potassium-lead-copper triple nitrites has recently been demonstrated, the results obtained indicating that the water often found on analysing the cobaltinitrite is not combined directly with the molecule but is water of impregnation. Results of measurements on a further series of complex nitrites, isomorphous with the others, are now given: $\text{K}_2\text{Ca}[\text{Ni}(\text{NO}_2)_6]$, $a = 10.29 \text{ \AA}$, calculated density 2.75; $\text{K}_2\text{Sr}[\text{Ni}(\text{NO}_2)_6]$, 10.49, 2.88; $\text{K}_2\text{Ba}[\text{Ni}(\text{NO}_2)_6]$, 10.67, 3.02; $\text{K}_2\text{Ca}[\text{Co}(\text{NO}_2)_6]$, 10.17, 2.86; $\text{K}_2\text{Sr}[\text{Co}(\text{NO}_2)_6]$, 10.23, 3.10; $\text{K}_2\text{Ba}[\text{Co}(\text{NO}_2)_6]$, 10.45, 3.20. Similar compounds with copper in place of cobalt or nickel give photograms with what appear to be the lines of two isomorphous monometric lattices.—G. Mezzadrol: (1) Action of ultra-short electromagnetic waves on silkworms irradiated prior to incubation. This action produces a favourable effect throughout the whole life-cycle of the worms—hatching, growth, and spinning—and results in an increased final product.—(2) Action of Italian radioactive soils on the germination of seeds and on the growth of plants. The influence of finely ground Italian soil of radioactivity 4.2×10^{-9} per gram on plants (peas, maize) grown in the laboratory in Knopp's nutrient solution is manifested in marked increase in the length of the roots and in the development of the plants. Field experiments in which the radioactive soil was used as fertiliser result in stronger and greener plants and in yields exceeding by 20 per cent or more those of the controls.—A. Galamini: The fasting and re-nutrition curves in castrated male rats.

VIENNA

Academy of Sciences, Dec. 10.—L. Schmid and E. Kotter: (1) A trityl-ether of glycogen. (2) The dye of the mullein blossoms, *Verbascum*. The pig

ment is a glucoside, apparently α -crocetin.—A. Jellinek: Training experiments with long-tailed monkeys, *Cercopithecus*. (1) Distinguishing objects by colour, brightness and tone. Coloured cardboard boxes were used and a reward of sugar. They learnt to distinguish yellow from violet.—(2) The monkeys learnt to distinguish a framework box containing one lump of sugar from a similar box containing two lumps of sugar, being rewarded with the sugar when they chose the one lump.—E. Murr: (1) Experimental reduction, by heat, of the time of gestation in the ferret (*Putorius furo*). Some ferrets were kept at 20° and some at 35°. Those at the lower temperature had a gestation period of about 41½ days, those at the higher temperature about 39½ days.—(2) The course of bodily temperature in mammals (*Putorius furo*) during gestation. In the first part of gestation the temperature is slightly higher than in the second half.—H. Prziham and P. Suster: Antenna and leg regeneration in phasmids.—P. M. Suster: Regeneration of antenna and of Johnston's organ in the rhinoceros beetle, *Oryctes nasicornis*.—P. M. Suster: Inheritance of enforced feeding on *Drosophila repleta*. Ten generations of the fly were fed on carrot, and afterwards, for five more generations, carrot was offered as an alternative and much more frequently chosen for egg-deposition.—K. Trinczer: The rôle of temperature and humidity in the colour-change of frogs.—K. Fritsch: Observations on flower-visiting insects in Styria, 1911.

WASHINGTON, D.C.

National Academy of Sciences (*Proc.*, vol. 17, No. 12, Dec. 15).—Carl E. Seashore: The natural history of the vibrato. A study of the vibrato has been made by (1) phonophotographic recording of music and speech, and (2) psychophysical measurements of perception of vibrato produced synthetically by instruments. A definition of vibrato is offered: an artistic vibrato consists of a periodic oscillation in pitch averaging a half-tone for singers and a quarter-tone for string instruments, at an average rate of 6-7 cycles a second, usually accompanied by synchronous intensity and timbre oscillations playing a secondary rôle.—Walter R. Miles: Measures of certain human abilities throughout the life span. Manual motility and reaction speed in males show a general increase up to the 'twenties', and then a gradual decline with age. It is suggested that neural conservation mechanisms become more potent with increasing age.—George Grant MacCurdy: The use of rock crystal by palæolithic man. Seven rock crystal tools have been found by the American School of Prehistoric Research in the lower of two Mousterian levels in a rock shelter, Les Merveilles, at Castel-Merle, near Sergeac (Dordogne).—Wilder D. Bancroft, Robert S. Gutsell, and J. E. Rutzler, jr.: Reversible coagulation in living tissue (9).—Morphine addiction was induced in dogs and the symptoms on sudden withdrawal of morphine (which agglomerates nerve colloids) were relieved by sodium rhodanate (which peptises the nerve colloids).—W. V. D. Hodge: Further properties of Abelian integrals attached to algebraic varieties.—George D. Birkhoff: (1) Proof of a recurrence theorem for strongly transitive systems.—(2) Proof of the ergodic theorem.—O. Veblen and J. H. C. Whitehead: Correction to "A set of axioms for differential geometry".—H. S. Vandiver: Summary of results and proofs on Fermat's last theorem (6).—P. A. Smith: Properties of group manifolds.—A. Wintner and F. D. Murnaghan: On a polar representation of non-singular square matrices.—Joseph M. Dalla Valle: Note on the Heaviside expansion formula.—Edwin B. Wilson and Margaret M. Hilferty: The distribution of chi-square (χ^2).—H. Bateman: Relations

between confluent hypergeometric functions.—G. A. Miller: Groups involving a small number of conjugates.—Marcus M. Rhoades: Linkage values in an interchange complex in *Zea*. Evidence is given of the occurrence of reciprocal translocation (segmental interchange) in a semi-sterile maize.—P. C. Mangelsdorf: Modification of Mendelian ratios in maize by mechanical separation of gametes. Separating the pollen grains by sieves into tiny and normal showed that the genes for 'starchy' and 'sugary' are genetically associated with size of pollen grain; the tiny grains accomplish fertilisation only rarely in competition with normal grains.—Clyde E. Keeler: A probable new mutation to 'white-belly' in the house mouse, *Mus musculus*.

Forthcoming Events

FRIDAY, APRIL 15

SOCIETY FOR EXPERIMENTAL BIOLOGY (in Department of Zoology, University Museums, Oxford), at 10.30 A.M., 2.30, and 5.30.

ROYAL ANTHROPOLOGICAL INSTITUTE (Sociological Research Committee), at 2.—J. H. Driberg: Economic Stages of Development in Africa.

SOCIETY OF DYERS AND COLOURISTS (Manchester Section) (at 36 George Street, Manchester), at 7.—Annual Meeting.

SATURDAY, APRIL 16

SOCIETY FOR EXPERIMENTAL BIOLOGY (in Department of Zoology, University Museums, Oxford), at 10 A.M. and 2.30.

MONDAY, APRIL 18

ROYAL GEOGRAPHICAL SOCIETY, at 5.—S. T. A. Mirtlees: The Weather on a Greenland Air Route: Discussion of Meteorological Results of the B.A.A.R.E.

ROYAL SOCIETY OF ARTS, at 8.—Prof. J. C. Drummond: Recent Researches in the Nature and Functions of Vitamins (Cantor Lectures) (1).

TUESDAY, APRIL 19

ROYAL SOCIETY OF MEDICINE.—Special Meeting of Fellows, at 5; General Meeting of Fellows, at 5.30.

GRESHAM COLLEGE (Basinghall Street, E.C.2), at 6.—A. R. Hinks: Celestial Objects of Peculiar Interest (Gresham Lectures). (Also on April 20, 21, and 22.)

SOCIETY OF CHEMICAL INDUSTRY (Birmingham and Midland Section) (at Chamber of Commerce, Birmingham), at 6.30.—Annual Meeting.

WEDNESDAY, APRIL 20

SOCIETY OF GLASS TECHNOLOGY (at Sheffield University).—Annual General Meeting, at 2; Ordinary Meeting, at 2.30.—R. A. Hacking: Recent Developments in Open Hearth Furnace Design.—Dr. G. Zotos: A New Method of Melting Glasses and Silicates.

TEXTILE INSTITUTE (at Manchester), at 3.—Annual General Meeting.

ROYAL SOCIETY OF ARTS (Dominions and Colonies Meeting), at 4.30.—J. O. P. Bland: China and the Future of our Far Eastern Trade (Lecture).—At 8.—J. G. Jarvie: Instalment Buying (Lecture).

ROYAL MICROSCOPICAL SOCIETY (at B.M.A. House, Tavistock Square), at 5.—Discussion on The Microscopy of the Filterable Viruses. Speakers: The President, J. E. Barnard, Prof. J. C. G. Ledingham, Dr. S. P. Bedson, Dr. C. C. Hurst, Prof. J. McIntosh, Capt. S. R. Douglas, Dr. W. J. Elford, Dr. G. M. Findlay, B. K. Johnson, and others.

THURSDAY, APRIL 21

INSTITUTION OF ELECTRICAL ENGINEERS, at 6.—Dr. W. E. Sumpner: The Work of Oliver Heaviside (Kelvin Lecture).

FRIDAY, APRIL 22

ROYAL ANTHROPOLOGICAL INSTITUTE (Human Biology Research Committee), at 5.30.—Prof. J. B. S. Haldane: Present Knowledge concerning Blood Groups.

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SOCIETY OF CHEMICAL INDUSTRY (Chemical Engineering Group) (Annual General Meeting) (at Waldorf Hotel, Aldwych), at 6.45, followed by dinner at 7.30.—Sir Robert Horne: Currency and Prices (Address).

ROYAL INSTITUTION OF GREAT BRITAIN, at 9.—Prof. J. B. S. Haldane: Hereditary Transmission of Acquired Characters.

SATURDAY, APRIL 23

INSTITUTION OF ELECTRICAL ENGINEERS (Irish Centre—Dublin).—Prof. J. K. Catterson-Smith: Everyday Uses of Electricity (Faraday Lecture).

Official Publications Received

BRITISH

Transactions of the Institute of Marine Engineers, Incorporated. Session 1932, Vol. 44, No. 2, March. Pp. 57-106+xxxvi. (London.)

The Quarterly Journal of the Geological, Mining and Metallurgical Society of India. Vol. 3, No. 3, November 1931. Pp. 83-151. (Calcutta.) 6 rupees.

Annals of the Royal Botanic Gardens, Peradeniya. Edited by N. D. Simpson. (Ceylon Journal of Science, Section A: Botany.) Vol. 11, Part 4, February 20th. Pp. 307-359+plates 45-52. (Peradeniya: Director of Agriculture; London: Dulau and Co., Ltd.) 3 rupees.

Commonwealth of Australia: Council for Scientific and Industrial Research. Bulletin No. 56: A Soil Survey of Blocks A, B, C, D and F, Renmark Irrigation District, South Australia. By T. J. Marshall and P. D. Hooper. Pp. 23. Bulletin No. 58: The Life Cycle of *Stephanurus dentatus* Deising, 1859, the Kidney Worm of Pigs; with Observations on its Economic Importance in Australia and Suggestions for its Control. By I. Clunies Ross and G. Kausal. Pp. 80. (Melbourne: H. J. Green.)

Proceedings of the Edinburgh Mathematical Society. Series 2, Vol. 3, Part 1, March. Edited by Prof. H. W. Turnbull and Dr. E. T. Copson. Pp. 76. (London: G. Bell and Sons, Ltd.)

British Honduras. Annual Report of the Forest Trust for the Year ended 31st March 1931. (Belize: Conservator of Forests.)

Proceedings of the Royal Society of Edinburgh, Session 1931-1932. Vol. 52, Part 2, No. 6: On the Definition of Spatial Distance in General Relativity. By H. S. Ruse. Pp. 183-194. 1s. Vol. 52, Part 2, No. 7: Graphical Classification of Carbonaceous Minerals; the Place of the Constituents of Common Coal. By Prof. Henry Briggs. Pp. 195-199. 9d. (Edinburgh: Robert Grant and Son; London: Williams and Norgate, Ltd.)

Research Association of British Rubber Manufacturers. Twelfth Annual Report for the Year 1931. Pp. 38. (Croydon.)

Journal of the Chemical Society. March. Pp. iv+725-988+vi. (London: Chemical Society.)

FOREIGN

Bulletin of the Bingham Oceanographic Collection, Peabody Museum of Natural History, Yale University. Vol. 4, Art. 2: A Revision of the Genus *Gobionellus* (Family *Gobiidae*). By Isaac Ginsburg. Pp. 51. (New Haven, Conn.)

Science Reports of the Tokyo Bunrika Daigaku. Section A, Nos. 15-17: Barkhausen-Kurz-Effekt nach der Wellenmechanik, von Kwai Umeda; Wave-Length Shifts of certain Spectral Lines of Hg II, by Atô Imazato; A Theory of the Rotatory Dispersion, by Gentaro Araki. Pp. 167-201. (Tokyo: Maruzen Co., Ltd.) 47 sen.

Meddelande från Lunds Astronomiska Observatorium. Ser. 1, Nr. 129: The Effect of Change of Origin in Type A Series. By Richard A. Robb. Pp. 12. Ser. 1, Nr. 130: The Application of Type A Series to Skew Curves. By Richard A. Robb. Pp. 10. (Lund.)

Field Museum of Natural History. Report Series, Vol. 9, No. 1: Annual Report of the Director to the Board of Trustees for the Year 1931. (Publication 306.) Pp. 287+22 plates. (Chicago.) 1 dollar.

Proceedings of the Academy of Natural Sciences of Philadelphia, Vol. 84. Reptiles and Amphibians from Honduras. By E. R. Dunn and John T. Emlen, Jr. Pp. 21-32. (Philadelphia.)

Contributions to American Archaeology, Vol. 1, Nos. 1-4. Excavations at Baking Pot, British Honduras, by Oliver Ricketson, Jr.; Maya Astronomy, by Dr. John E. Teeple; The Temple of the Wall Panels, Chichen Itzá, by Karl Ruppert; Notes on the Metates of Chichen Itzá, Yucatan, by Gustav Strömsvik. (Publication No. 403.) Pp. iii+157+49 plates. (Washington, D.C.: Carnegie Institution.)

Contributions to the Genetics of certain Chromosome Anomalies in *Drosophila melanogaster*. By A. H. Sturtevant and T. Dobzhansky. (Publication No. 421.) Pp. v+81. (Washington, D.C.: Carnegie Institution.)

Meddelelser fra Kommissionen for Danmarks Fiskeri- og Havundersøgelser, Serie Fiskeri. Bind 9, Nr. 1: Biological Investigations upon the Cod in Danish Waters. By Erik M. Poulsen. Pp. 150. 10.00 kr. Bind 9, Nr. 2: Investigations of the Plaice Stock in the Southern Horns Reef Area in the Years 1928-1930. By Aage J. C. Jensen. Pp. 32. 2.50 kr. Bind 9, Nr. 3: Fluctuations in the Stock of Cod in Icelandic Waters. By A. Vedel Tåning. Pp. 43. 3.15 kr. Bind 9, Nr. 4: On the Spawning Places of the Herring in certain parts of the North Sea, the Skagerak and the Kattegat in the Autumn of 1930 and some Earlier Years. By Erik M. Poulsen. Pp. 17. (København: C. A. Reitzels Forlag.)

CATALOGUES

Botany, Entomology, Ornithology, Zoology, etc.: Catalogue of Books at Cheap Clearance Prices. (No. 198.) Pp. 16. (London: Dulau and Co., Ltd.)

A Catalogue of Important and Rare Books on Zoology, Geology and Palaeontology. (No. 456.) Pp. 100. (London: Bernard Quaritch, Ltd.)

Old-Time Literature, principally of XVIIth and XVIIth Centuries. (No. 461.) Pp. 80. (Cambridge: Bowes and Bowes.)

Temperature Measurement. Pp. 4. (London: Negretti and Zambra.)